GRADATION FOR WMM
(As per MORT&H 400-2,Grading-1)

TEJUS CONSULTANTS

Name of Work	:	The Work OF Improvements to Sanitary work in ward No. 08, Kodigehalli
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S KRIDL.
Date of Testing	:	20.02.2019
Type of Mix	:	GSB
Sample I/D	:	GSB1

Sample Location:	At plant	**Date of Sampling:**	20.02.2019
		Date of testing:	20.02.2019
Type of material & Purpose:	GSB	**Oven Dry Wt.(gms):**	10000.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
75	0	0	0.00	100.00	100.00
26.5	2962	2962	29.62	70.38	55-75
4.75	4821	7783	77.83	22.17	10-30
0.075	1862	9645	96.45	3.55	0-10
Pan	355.0				
Total	10000.0				

Note:

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2. The results indicated above are based on the tests carried out on the samples received in the laboratory/Site.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.

TEJUS CONSULTANTS

Authorised Signatory

GRADATION FOR WMM
(As per MORT&H 400-2,Grading-1)

TEJUS CONSULTANTS

Name of Work	:	The Work OF Improvements to Sanitary work in ward No. 08, Kodigehalli
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/s J C Prakash Infrastructures Private Limited .
Date of Testing	:	20.02.2019
Type of Mix	:	GSB
Sample I/D	:	GSB1

Sample Location:	At plant	Date of Sampling:	20.02.2019
		Date of testing:	20.02.2019
Type of material & Purpose:	GSB	Oven Dry Wt.(gms):	10000.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
75	0	0	0.00	100.00	100.00
26.5	2936	2936	29.36	70.64	55-75
4.75	4825	7761	77.61	22.39	10-30
0.075	1862	9623	96.23	3.77	0-10
Pan	377.0				
Total	10000.0				

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GRADATION FOR GSB
(As per MORT&H 400-1,Grading-II)

TEJUS CONSULTANTS

Name of Work	:	The Work of Improvements to Sanitary work in ward No. 08, Kodigehalli
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S KRIDL
Date of Testing	:	20.02.2019
Type of Mix	:	GSB
Sample I/D	:	GSB1

Sample Location:	At plant	Date of Sampling:	20.02.2019
		Date of testing:	20.02.2019
Type of material & Purpose:	GSB	Oven Dry Wt.(gms):	10000.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
75	0	0	0.00	100.00	-
53	0	0	0.00	100.00	100.00
26.5	2212	2212	22.12	77.88	70-100
9.5	2620	4832	48.32	51.68	50-80
4.75	894	5726	57.26	42.74	40-65
2.36	1216	6942	69.42	30.58	30-50
0.425	1952	8894	88.94	11.06	10-15
0.075	826	9720	97.20	2.80	<5
Pan	280.0				
Total	10000.0				

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GRADATION FOR GSB
(As per MORT&H 400-1,Grading-II)

Name of Work	:	The Work OF Improvements to Sanitary work in ward No. 08, Kodigehalli
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S KRIDL
Date of Testing	:	20.02.2019
Type of Mix	:	GSB
Sample I/D	:	GSB1

Sample Location:	At plant	Date of Sampling:	20.02.2019
		Date of testing:	20.02.2019
Type of material & Purpose:	GSB	Oven Dry Wt.(gms):	10000.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
75	0	0	0.00	100.00	-
53	0	0	0.00	100.00	100.00
26.5	2210	2210	22.10	77.90	70-100
9.5	2630	4840	48.40	51.60	50-80
4.75	894	5734	57.34	42.66	40-65
2.36	1210	6944	69.44	30.56	30-50
0.425	1952	8896	88.96	11.04	10-15
0.075	825	9721	97.21	2.79	<5
Pan	279.0				
Total	10000.0				

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TEJUS CONSULTANTS

Project	The Work OF Improvements to Sanitary work in ward No. 08, Kodigehalli
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/S KRIDL

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28))

Date of Testing	21.02.2019		
Layer no. or level	GSB layer		
Depth of hole	200mm		
Field density:	1	2	2
Wt. of wet material from hole (Ww) gms.	5200	5212	5230
Wt. of sand+cylinder before pouring (w1) gms.	14000	14000	14000
Wt. of sand+cylinder after pouring (w2) gms.	9650	9648	9652
Wt. of sand in cone (w3) gms.	870	870	870
Wt. of sand in hole (w4)=(w1-w2-w3) gms.	3480	3482	3478
Bulk density of sand (γs)gm/cc	1.32	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (γb)=(Ww/w4*(γs))gm/cc	1.97	1.98	1.98
Moisture meter reading(moisture content)	10.20	10.30	10.20
Result			
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	1.79	1.79	1.80
MDD	1.83	1.83	1.83
OMC	10.30%	10.30%	10.30%
% compaction obtained	98.07	98.15	98.70
% compaction required	98%	98%	98%

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Project	The Work OF Improvements to Sanitary work in ward No. 08, Kodigehalli
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/S KRIDL

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28))

Date of Testing	**21.02.2019**		
Layer no. or level	GSB layer		
Depth of hole	200mm		
Field density:	1	2	2
Wt. of wet material from hole (Ww) gms.	5210	5220	5250
Wt. of sand+cylinder before pouring (w1) gms.	14000	14000	14000
Wt. of sand+cylinder after pouring (w2) gms.	9646	9640	9640
Wt. of sand in cone (w3) gms.	870	870	870
Wt. of sand in hole (w4)=(w1-w2-w3) gms.	3484	3490	3490
Bulk density of sand (γs)gm/cc	1.32	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (γb)=(Ww/w4*(γs))gm/cc	1.97	1.97	1.99
Moisture meter reading(moisture content)	10.30	10.25	10.30
Result			
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	1.79	1.79	1.80
MDD	1.83	1.83	1.83
OMC	10.30%	10.30%	10.30%
% compaction obtained	98.06	98.12	98.64
% compaction required	98%	98%	98%

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AGGREGATE IMPACT VALUE
(IS: 2386 Part - 4)

TEJUS CONSULTANTS

Project	The Work of Improvements to Sanitary work in ward No. 08, Kodigehalli		
Client	BRUHAT BANGALORE MAHANAGARA PALIKE		
Consultant	M/s Tejus Consultants		
Contractor	M/s KRIDL		
Proposed Use	WMM	**Date of Sampling**	**25.02.2019**
Sample Location	**At plant**	**Date of Testing**	**25.02.2019**

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	342.00	347.00	352.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	268.00	270.00	272.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	74.00	77.00	80.00	
4	Aggregate Impact Value (%)	(Wc/Wa)* 100	21.64	22.19	22.73	
5	Average Aggregate impact value	(%)	22.18			Max - 30 %

Remarks : Satisfactory / Not Satisfactory

Authorised Signatory

TEJUS CONSULTANTS

AGGREGATE IMPACT VALUE
(IS: 2386 Part - 4)

TEJUS CONSULTANTS

Project	The Work of Improvements to Sanitary work in ward No. 08, Kodigehalli		
Client	BRUHAT BANGALORE MAHANAGARA PALIKE		
Consultant	M/s Tejus Consultants		
Contractor	M/s KRIDL		
Proposed Use	WMM	**Date of Sampling**	**25.02.2019**
Sample Location	**At plant**	**Date of Testing**	**25.02.2019**

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	360.00	342.00	362.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	282.00	268.00	280.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	78.00	74.00	82.00	
4	Aggregate Impact Value (%)	(Wc/Wa)* 100	21.67	21.64	22.65	
5	Average Aggregate impact value	(%)	21.99			Max - 30 %

Remarks : Satisfactory / Not Satisfactory

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FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Project	The Work of Improvements to Sanitary work in ward No. 08, Kodigehalli
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/S KRIDL

Type of Material	WMM	**Proposed Use**	WMM
Sample Location	At plant	**Date of Sampling**	25.02.19
		Date of Testing	25.02.19

Size of aggregate		Flakiness Index		Elongation Index	
Passing through IS sieve, mm	**Retained on IS sieve, mm**	**Total wt. of aggregate retained on sieves (A) gms.**	**Wt. of aggregate passing from Flakiness gauge (B) gms**	**Wt. of aggregate retained on Flakiness gauge (C) gms**	**Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms**
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	0	0	0	0
31.5	25.0	0	0	0	0
25.0	20.0	0	0	0	0
20.0	16.0	900	98	802	58
16.0	12.5	1200	120	1080	120
12.5	10.0	500	72	428	70
10.0	6.3	500	72	428	40
Total		**3100**	**362**	**2738**	**288**

Note: Minimum 200 Pcs should be taken on each fraction of test

Flakiness Index(%):	11.68
Elongation Index(%):	10.52
Combined FI+EL (%)	22.20

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GRADATION FOR WMM
(As per MORT&H 400-11)

Name of Work	:	The Work of Improvements to Sanitary work in ward No. 08, Kodigehalli
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S KRIDL
Date of Testing	:	25.02.19
Type of Mix	:	WMM
Sample I/D	:	WMM 1

Sample Location:	At plant	**Date of Sampling:**	25.02.19
Type of material & Purpose:	WMM	**Date of testing:**	25.02.19
		Oven Dry Wt.(gms):	10000.0

IS Sieve size in mm	Weight retained (gm)	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
53	0	0	0.00	100.00	100.00
45	631	631	6.31	93.69	95-100
22.4	2622	3253	32.53	67.47	60-80
11.2	1782	5035	50.35	49.65	40-60
4.75	1452	6487	64.87	35.13	25-40
2.36	1362	7849	78.49	21.51	15-30
0.6	820	8669	86.69	13.31	8.0-22.0
0.075	802	9471	94.71	5.29	0-8
Pan	529				
Total	10000				

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GRADATION FOR WMM
(As per MORT&H 400-11)

Name of Work	:	The Work of Improvements to Sanitary work in ward No. 08, Kodigehalli
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S KRIDL
Date of Testing	:	25.02.19
Type of Mix	:	WMM
Sample I/D	:	WMM 2

Sample Location:	At plant	**Date of Sampling:**	25.02.19
Type of material & Purpose:	WMM	**Date of testing:**	25.02.19
		Oven Dry Wt.(gms):	10000.0

IS Sieve size in mm	Weight retained (gm)	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
53	0	0	0.00	100.00	100.00
45	598	598	5.98	94.02	95-100
22.4	2520	3118	31.18	68.82	60-80
11.2	1810	4928	49.28	50.72	40-60
4.75	1520	6448	64.48	35.52	25-40
2.36	1420	7868	78.68	21.32	15-30
0.6	852	8720	87.20	12.80	8.0-22.0
0.075	800	9520	95.20	4.80	0-8
Pan	480				
Total	10000				

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Project	**The Work of Improvements to Sanitary work in ward No. 08, Kodigehalli**
Client	**BRUHAT BANGALORE MAHANAGARA PALIKE**
Consultant	**M/s Tejus Consultants**
Contractor	**M/S KRIDL**

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28)

Date of Testing	**26.02.19**
Layer no. or level	WMM I layer
Depth of hole	250mm

Field density:	**1**	**2**	**3**
Wt. of wet material from hole (Ww) gms.	6188	6118	6210
Wt. of sand+cylinder before pouring (w1) gms.	14000	14000	14000
Wt. of sand+cylinder after pouring (w2) gms.	9722	9710	9692
Wt. of sand in cone (w3) gms.	835	842	830
Wt. of sand in hole (w4)=(w1-w2-w3) gms.	3443	3448	3478
Bulk density of sand (γs)gm/cc	1.31	1.32	1.31
Bulk density of material(i.e. wt. of the wet material) (γb)=(Ww/w4*(γs))gm/cc	2.35	2.34	2.34
Moisture meter reading(moisture content)	12.66	12.52	12.32
Result			
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	2.09	2.08	2.08
MDD	2.12	2.12	2.12
OMC	12.60%	12.60%	12.60%
% of Compaction Obtained	98.58	98.19	98.23
Compaction Required	98%	98%	98%

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Project	**The Work of Improvements to Sanitary work in ward No. 08, Kodigehalli**
Client	**BRUHAT BANGALORE MAHANAGARA PALIKE**
Consultant	**M/s Tejus Consultants**
Contractor	**M/S KRIDL**

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28)

Date of Testing	**26.02.19**
Layer no. or level	WMM I layer
Depth of hole	250mm

Field density:	**1**	**2**	**3**
Wt. of wet material from hole (Ww) gms.	6214	6244	6236
Wt. of sand+cylinder before pouring (w1) gms.	14000	14000	14000
Wt. of sand+cylinder after pouring (w2) gms.	9682	9642	9698
Wt. of sand in cone (w3) gms.	835	842	830
Wt. of sand in hole (w4)=(w1-w2-w3) gms.	3483	3516	3472
Bulk density of sand (ys)gm/cc	1.31	1.32	1.31
Bulk density of material(i.e. wt. of the wet material) (yb)=(Ww/w4*(ys))gm/cc	2.34	2.34	2.35
Moisture meter reading(moisture content)	12.42	12.58	12.50
Result			
FDD(Wt.of the dry material)=(100yb/100+mc)gm/cc	2.08	2.08	2.09
MDD	2.12	2.12	2.12
OMC	12.60%	12.60%	12.60%
% of Compaction Obtained	98.06	98.22	98.65
Compaction Required	98%	98%	98%

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